PUB-NO: WO2004091221A2

DOCUMENT-IDENTIFIER: WO 2004091221 A2
TITLE: FIXED BIT RATE, INTRAFRAME COMPRESSION AND DECOMPRESSION OF VIDEO

PUBN-DATE: October 21, 2004

INVENTOR-INFORMATION:

NAME	COUNTRY
KOTTKE, DANE P	
CORNOG, KATHERINE H	
RYNDERMAN, MICHEL	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
AVID TECHNOLOGY INC	US

APPL-NO: US2004010243
APPL-DATE: April 1, 2004

PRIORITY-DATA: US46051703P (April 4, 2003), US46054703P (April 4, 2003)

US-CL-CURRENT: 375/E7.14; 375/E7.153, 375/E7.154, 375/E7.211, 375/E7.226, 375/E7.231, 375/E7.232
INT-CL (IPC): H04N 7/26

ABSTRACT:

CHG DATE=20050430 STATUS=O>High quality intraframe-only compression of video can be achieved using rate distortion optimization and without resizing or bit depth modification. The compression process involves transforming portions of the image to generate frequency domain coefficients for each portion. A bit rate for each transformed portion using a plurality of scale factors is determined. Distortion for each portion is estimated according to the plurality of scale factors. A scale factor is selected for each portion to minimize the total distortion in the image to achieve a desired bit rate. A quantization matrix is selected according to the desired bit rate. The frequency domain coefficients for each portion are quantized using the selected plurality of quantizers as scaled by the selected scab factor for the portion. The quantized frequency domain coefficients are encoded using a variable length encoding to provide compressed data for each of the defined portions. The compressed data is output for each of the defined portions to provide a compressed bitstream at the desired bit rate. The bit stream format includes, for each image, a picture header followed by image scan data. The image scan data includes data corresponding to a plurality of macroblock rasterscans. The data for each macrobbck rasterscan includes data for a plurality of macroblocks for a band of lines in the image followed by padding. The padding ensures that data for each macroblock rasterscan terminates on a data boundary. The picture header references an image scan index that indicates a number of macroblock rasterscans in the image scan data and a number of lines per macroblock rasterscan, followed by entries of the index. Each entry in the index includes an offset of the macroblock rasterscan in image scan.